

New Jersey Well Vulnerability Questionnaire For Obtaining a Pesticide and/or SOC Waiver

INTRODUCTION

A Synthetic Organic Compound (SOC) Waiver may save you up to \$30,000 in water sampling costs. The purpose of this Questionnaire is to help you obtain a waiver from sampling for some or all of the SOC's (primarily pesticides) that are part of the federal drinking water monitoring requirements. Without a waiver, you are required by the federal regulations to conduct four rounds of quarterly sampling for certain pesticides and SOC's. Eligibility for a SOC Waiver may result in a reduction or elimination of the need to monitor at your water system. However, the Bureau of Safe Drinking Water (Bureau) cannot determine your system's eligibility for a waiver without the Questionnaire information.

INSTRUCTIONS

- 1 *To be considered for a SOC waiver, a completed Questionnaire must be on file with the Bureau for **each well** at your system.*
- 2 *There are FOUR PAGES OF QUESTIONS to complete (pages 3, 6, 7, and 8). On those pages, there are five parts **Parts A, B, C, D and E**. Detailed instructions accompany each section. You must fill out and return all four (pages 3, 6, 7, and 8) pages of the Questionnaire.*
- 3 *Note that if more than one well is in use at your system, then you should photocopy pages 3, 6, 7 and 8 of the Questionnaire, and complete those pages for **each well** listed.*
- 4 *There are four attachments, listed below, which will further assist you in filling out the Questionnaire.*
- 5 *When completed, please return the Questionnaire (pages 3, 6, 7 and 8) to*

NJDEP, Mail Code 401-03
Bureau of Safe Drinking Water
P O Box 420
Trenton, NJ 08625-0420
- 6 *If you have any questions, please call the Bureau of Safe Drinking Water at (609) 292-5550.*
- 7 *Be sure to make a photocopy for your own records.*
- 8 *We strongly suggest that you complete the Questionnaire within the specified timeframe. It will save you a considerable amount of time and money in monitoring costs and/or possible enforcement actions.*

ATTACHMENTS

- Attachment 1 - Table Used to Determine the Calculated Fixed Radius for a Well
- Attachment 2 - Well Record Information Form
- Attachment 3 - CFR Table Selection Based on Geologic Formation or Aquifer Name
- Attachment 4 - CFR Table Selection Based on Municipality

New Jersey Well Vulnerability Questionnaire For Obtaining a Pesticide and /or SOC Waiver

Part A Well Information

Complete **Part A** for each well in your system, questions **1** through **15**. Detailed instructions for each question appear in *Italics*, adjacent to the question. Based on the answers provided to questions **7**, **10**, **11**, **12** and **14**, you should be able to select the appropriate "calculated fixed radius"(CFR) from one of the four tables contained in Attachment 1. The CFR value is the answer to question **15**. Once you have determined the CFR value, you use it to define an area which surrounds the well. The CFR value is the length, in feet, of the radius of a circle, which defines the vulnerable area surrounding your well. The vulnerability of your well to contamination is based on well construction, land uses and activities within the CFR area. To demonstrate the CFR concept, page 5 shows an idealized CFR area, enlarged to three times its normal size. There are detailed instructions on page 4 for determining the correct CFR for each well.

The resulting CFR area is the region around the well that you visually inspect in order to answer the land use and activity questions in parts B and C of the Questionnaire. Instructions to determine your CFR area follow.

If the answer to question **12** or to **14** is unknown, then the CFR cannot be determined and the well's vulnerability cannot be assessed. Without the CFR determination, the Questionnaire cannot be completed and the Bureau cannot consider granting a waiver. As such, if a waiver is desired, it is in the best interest of the water system to find the missing information. The water system/well owner can submit a request to the Bureau for a well record search to locate the missing information, or can contact a licensed well driller to take the needed measurements. **Attachment 2**, contains a request form for a well record search.

Part B Current Land Use Survey

Once you have determined the calculated fixed radius (CFR), go to your well site. Visually inspect the CFR area for each of the five land use categories in **Part B-1**. Circle the percent which best describes each land use within the CFR. If any of the land is used for agriculture, indicate which types of crops are grown in **Part B-2**. Agricultural crops. If there is no agricultural use within the CFR, skip **Part B-2**.

Part C Current Activities Survey

Part C must be completed by canvassing the area within the CFR and visually inspecting that area. Indicate whether or not a particular activity occurs within the CFR by placing an "x" in either the YES or NO column.

Part D Additional Information

Indicate the answer to the question with an "x".

Part E Questionnaire Certification

The person who signs the Questionnaire should be the owner or operator of the water system or a designated representative authorized to sign and to accept responsibility for the answers provided in the Questionnaire.

New Jersey Well Vulnerability Questionnaire for Obtaining a Pesticide/SOC Waiver

PWSID # NJ_____ Facility ID # TP_____ Well ID # WL_____

Part A Well Information (specific instructions or comments for each question below in *italics*)

Important Note much of the information requested below can now be found under the Facilities tab on the Bureau's Drinking Water Watch website at <https://www11.state.nj.us/DEP/WaterWatch/public/index.jsp>

INSTRUCTIONS	WELL INFORMATION
1) Print the Public Water System ID # <i>It starts with the letters NJ followed by 7 digits</i>	PWSID #
2) Print the name of the Water System	SYSTEM NAME
3) Print the Well Name (e.g. Well 1 back up well) <i>If you are unsure this can be found using the Bureau's Drinking Water Watch website mentioned above</i>	WELL NAME
4) The Facility Code for the well starts with the letters WL followed by 6 digits <i>If you are unsure this can be found using the Bureau's Drinking Water Watch website mentioned above</i>	WELL FACILITY ID #
5) Print the name of the treatment plant/facility associated with the well (e.g. Park Street Treatment Plant Well A Treatment Plant)	TREATMENT FACILITY NAME
6) The Facility Code for the treatment plant/facility associated with the well starts with the letters TP followed by 6 digits <i>If you are unsure this can be found using the Bureau's Drinking Water Watch website mentioned above</i>	TREATMENT FACILITY ID #
7) Print the Municipality where the WELL is located (not where the office or treatment plant is located)	MUNICIPALITY
8) Print the County where the WELL is located (not where the office or treatment plant is located)	COUNTY
9) The Well Permit # may be known or found in the owner's records or may be labeled on the well head itself <i>If it is unknown, please request a well record search using the form provided in Attachment 2</i>	WELL PERMIT #
10) The Aquifer Name may be known by the owner or found on the well record. If not available, it may be requested using the form in Attachment 2. Attachment 3 lists all relevant aquifer names.	AQUIFER NAME
11) The Geologic Formation may be known by owner or found on the well record. If not available, it may be requested using the form in Attachment 2. Attachment 3 lists all relevant geologic formations.	GEOLOGIC FORMATION
12) The Well Depth can be found on the well permit/record (see question 9 above). If it is unknown, please request it using the form provided in Attachment 2. The rest of this Questionnaire cannot be completed without the well depth	WELL DEPTH (FT)
13) The Casing Length can be found on the well permit/record. If it is unknown, it may be requested using the form provided in Attachment 2.	CASING LENGTH (FT)
14) The Pump Capacity can be found on the well permit/record (see question 9 above). If it is unknown, please request it using the form provided in Attachment 2. The rest of this Questionnaire cannot be completed without the pump capacity	PUMP CAPACITY (GPM)
15) The Calculated Fixed Radius (CFR) should be looked up in Attachment 1 (see detailed CFR instructions on the next page). The rest of this Questionnaire cannot be completed without determining the CFR	CALCULATED FIXED RADIUS

**New Jersey Well Vulnerability Questionnaire
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Part A FINDING YOUR WELL'S CALCULATED FIXED RADIUS

STEP A See Attachment 1-Tables used to Determine the Calculated Fixed Radius

There are four tables in Attachment 1 containing CFR values. You need to determine which of these four tables you should use for your well. This can be done in two ways. The easiest way (and more precise way) is if you know the aquifer or geologic formation in which your well is screened. You simply look up the name of the aquifer or formation in Attachment 3, which lists all aquifers and geologic formations in the State, in alphabetical order. Once you find aquifer or formation in the list, then you can see which table in Attachment 1 you need to use to identify the correct CFR value for your well.

If you do not know the name of the aquifer or the geologic formation, then you must use the second method. This is to look up the county and the municipality in which the well (not the office or treatment facility) is located, using Attachment 4. The municipalities are listed under the appropriate county, in alphabetical order. Once you find the municipality in the list, then you can see which table in Attachment 1 you need to use to identify the correct CFR value for your well.

At this point you should know which of the four tables in Attachment 1 you must refer to, and can proceed with Step B below.

Step B On the appropriate table in Attachment 1, there are well depth ranges listed horizontally along the top row. From among these ranges, select the one which includes your well's depth, as noted in **Part A** question 12. Listed vertically, along the left-hand side of the table are pump capacity ranges. Select the pump capacity range which contains the capacity of your well, as noted in **Part A** question 14. Run your finger down the depth column and horizontally along the pump capacity row and find the box where the two intersect. This is your well's calculated fixed radius (CFR) value.

STEP C Use this CFR value to answer **question 15** in **Part A**. This value is the length, in feet, of the radius of a circle around your well, which you must visually inspect to answer the vulnerability questions in **Part B Land Use** and **Part C Activities Survey**, (pages 6 & 7). An example of applying the CFR area is illustrated on page 5.

The remainder of the Questionnaire cannot be completed without first determining the CFR value.

Without a completed Questionnaire, the Bureau cannot evaluate your water system's eligibility to receive a waiver.

Drawing Your Well's Circulated Fixed Radius

draw circle

1 mark well

2. measure distance

example only
3 times scale

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PWSID # NJ _____ Facility ID # TP _____ Well ID # WL _____

Part B-1: Current Land Use Survey

Go outside and inspect the CFR area in order to answer the following questions. This can be done by walking or driving through the area. Some people find it helpful to mark different land uses on their map as they pass through the area. The different land uses noted in the CFR area should total to 100 percent. You can circle more than one percentage value within each land use type if it is appropriate, for example 75% and 10% if 85% of the land use is residential.

LAND USE WITHIN THE CFR	PERCENT					
AGRICULTURAL LAND	0	10	25	50	75	100
RESIDENTIAL	0	10	25	50	75	100
URBAN/COMMERCIAL	0	10	25	50	75	100
INDUSTRIAL	0	10	25	50	75	100
UNDEVELOPED	0	10	25	50	75	100

Part B-2: Current Agricultural Crops

(Complete only if there is agricultural land use within the CFR)

TYPES OF CROPS	YES	NO
FIELD CROPS (corn, soybeans, wheat, sorghum, alfalfa, etc)		
TREE FRUIT (apples, peaches, cherries, pears, plums, etc)		
SMALL FRUITS (cranberries, blueberries, grapes, raspberries, etc)		
VEGETABLES (tomatoes, beans, potatoes, squash, etc)		
LIVESTOCK (cattle, poultry, hogs, etc)		

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PWSID # NJ _____ Facility ID # TP _____ Well ID # WL _____

Part C Current Activities Survey

ACTIVITIES WITHIN THE CFR	YES	NO
ABANDONED WELL (include the date the well was sealed)		
AIRPORT, PUBLIC ROADWAY, STREET, LANE, RAILROAD, CANAL		
AUTO REPAIR/GAS STATION		
CHEMICAL MANUFACTURING FACILITY (other than pesticides)		
COMMERCIAL GREENHOUSE/NURSERY		
COMMERCIAL OR MUNICIPAL COMPOSTING		
DRY CLEANER		
FOUNDRY/SMELTER		
FURNITURE STRIPPING		
GOLF COURSE		
GRAIN SILO		
HAZARDOUS WASTE RECOVERY FACILITY		
JUNKYARD/LANDFILL		
MACHINE SHOP/METAL WORK		
MILITARY BASE/DEPOT		
PAPER MILL		
PARKING LOT		
PESTICIDE APPLICATOR (businesses that sell/store pesticides: lawn care, exterminator, etc)		
PESTICIDE DISTRIBUTOR (farm supplier agricultural chemical wholesaler, etc)		
PESTICIDE MANUFACTURER/FORMULATOR		
PETROLEUM STORAGE/TANK FARM		
PHOTOLAB PRINTERS		
PLASTICS MANUFACTURING/MOLDING		
POWER AND TRANSMISSION LINES (above ground)		
SEPTIC SYSTEMS (domestic and commercial)		
SOD FARM/SITE USING PROFESSIONAL LAWN CARE		
SUPERFUND SITE		
UNDERGROUND FUEL STORAGE TANK (commercial and industrial)		
WOOD PRESERVATIVE FACILITY/LUMBERYARD		

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PWSID # NJ _____ Facility ID # TP _____ Well ID # WL _____

Part D Additional Information

ADDITIONAL QUESTIONS	YES	NO	UNKNOWN
1) Has the well ever been taken off-line or drilled deeper because of any water-quality related problem? <i>If so please explain below</i>			
2) Is the water treated for the removal of organic chemicals prior to consumption? <i>(example airstripping, granular activated carbon filter, ozonation) If so please explain below</i>			
3) Are any pesticides applied or stored within 50 feet of the wellhead?			
4) Is any part of your water distribution system sealed with a product containing coal tar or benzo(a)pyrene? <i>(example pipe lining)</i>			
5) As part of your treatment process, do you add any polymers?			

Additional explanations should be noted below

Part E. Questionnaire Certification

I certify that the answers provided in this questionnaire are, to the best of my knowledge truthful, accurate and complete. I am aware that the information reported in this questionnaire will be verified during the next compliance inspection of the system and that false or incomplete information could result in the revoking of a waiver.

Signature of Respondent _____

Printed Name of Respondent _____

Title of Respondent _____

Phone Number ____ (____) _____ Date _____

Street Address _____

City _____ State _____ Zip Code _____

*(Please return pages 3, 6, 7, 8, and if applicable Attachment 5 to the Bureau of Safe Drinking Water)
(Be certain to make a photocopy for your own records)*

**New Jersey Well Vulnerability Questionnaire
Attachments**

**ATTACHMENT 1
Tables Used to Determine the Calculated Fixed Radius**

New Jersey Well Vulnerability Questionnaire Attachments

TABLES GENERIC CALCULATED FIXED RADIUS (FEET) FOR TIER 2 WHPA - FIVE YEAR TIME OF TRAVEL

TABLE 1 UNCONSOLIDATED SANDS, GRAVELS AND CLAYS (POROSITY VALUE = 0.23)

DEPTH PUMP CAPACITY (GPM)	0-50 ft.	51-100 ft.	101-200 ft.	201-300 ft.	301-400 ft.	> 400 ft.
<25 gpm	490	350	250	200	170	160
25 - 50 gpm	700	490	350	280	250	220
51-100 gpm	990	700	490	400	350	310
101-200 gpm	1390	990	700	570	500	440
201-300 gpm	1710	1210	850	700	600	540
301-400 gpm	1970	1390	990	810	700	620
401-500 gpm	2210	1560	1110	900	780	700
501-600 gpm	2420	1710	1210	990	850	760
601-700 gpm	2600	1850	1300	1070	920	830
701-800 gpm	2790	1970	1390	1140	990	880
801-900 gpm	2960	2090	1480	1210	1050	940
> 900 gpm	3120	2210	1560	1270	1100	990

TABLE 2: BASALT, DIABASE, SHALES, METAMORPHICS AND IGNEOUS (POROSITY VALUE = 0.05)

DEPTH PUMP CAPACITY (GPM)	0-50 ft.	51-100 ft.	101-200 ft.	201-300 ft.	301-400 ft.	> 400 ft.
<25 gpm	1060	750	530	430	370	330
25-50 gpm	1500	1060	750	610	530	470
51-100 gpm	2200	1500	1060	860	750	670
101-200 gpm	2990	2120	1500	1220	1060	950
201-300 gpm	3660	2590	1830	1500	1300	1160
301-400 gpm	4230	2990	2120	1730	1500	1340
401-500 gpm	4730	3350	2370	1930	1670	1500
501-600 gpm	5180	3660	2590	2120	1830	1640
601-700 gpm	5600	3960	2800	2290	1980	1770
701-800 gpm	5980	4230	2990	2440	2120	1890
801-900 gpm	6350	4490	3170	2590	2240	2010
> 900 gpm	6850	4730	3350	2730	2370	2120

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TABLES GENERIC CALCULATED FIXED RADIUS (FEET) FOR TIER 2 WHPA - FIVE YEAR TIME OF TRAVEL (CONTINUED)

TABLE 3 GLACIAL VALLEY FILLS (POROSITY VALUE = 0.25)

DEPTH PUMP CAPACITY (GPM)	0-50 ft.	51-100 ft.	101-200 ft.	201-300 ft.	301-400 ft.	> 400 ft.
<25 gpm	470	330	240	190	170	150
25-50 gpm	670	470	330	270	240	210
51-100 gpm	950	670	470	390	330	300
101-200 gpm	1340	950	670	550	470	420
201-300 gpm	1640	1160	820	670	580	520
301-400 gpm	1890	1340	950	770	670	600
401-500 gpm	2120	1500	1060	860	750	670
501-600 gpm	2320	1640	1160	950	820	730
601-700 gpm	2500	1770	1250	1020	890	790
701-800 gpm	2680	1890	1340	1090	950	850
801-900 gpm	2840	2010	1420	1160	1000	900
> 900 gpm	2990	2120	1500	1220	1060	950

TABLE 4 SANDSTONES AND LIMESTONES (POROSITY VALUE = 0.15)

DEPTH PUMP CAPACITY (GPM)	0-50 ft.	51-100 ft.	101-200 ft.	201-300 ft.	301-400 ft.	> 400 ft.
<25 gpm	610	430	310	250	220	190
25-50 gpm	860	610	430	350	310	270
51-100 gpm	1220	860	610	500	430	390
101-200 gpm	1730	1220	860	710	610	550
201-300 gpm	2120	1500	1060	860	750	670
301-400 gpm	2440	1730	1220	1000	860	770
401-500 gpm	2730	1930	1370	1120	970	860
501-600 gpm	2990	2120	1500	1220	1060	950
601-700 gpm	3230	2290	1620	1320	1140	1020
701-800 gpm	3450	2440	1730	1410	1220	1090
801-900 gpm	3660	2590	1830	1500	1300	1160
> 900 gpm	3860	2730	1930	1580	1370	1220

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**ATTACHMENT 2
WELL RECORD REQUEST FORM**

REQUEST FOR WELL PERMIT/WELL RECORD

To obtain a copy of your NJ State Well Drilling Permit/Well Record, complete as much of this form as possible and return to the address listed at the bottom. The information you provide will enable the Bureau of Safe Drinking Water to perform a search of the Department's well permit database. Remember to provide all appropriate contact information. Please allow 2 weeks for the Bureau to perform your well search.

Current Property Owner Name _____

Public Water System ID # (PWSID#) _____

Water System Name / Business Name _____

Street Address of Property (where the well is located) _____

Nearest Intersection or Cross Street _____

Lot _____ & Block _____ number of property (where the well is located)
(Lot & Block number may be obtained from your municipal tax assessor's office)

Municipality _____ County _____

Approximate Year well was drilled or building was constructed _____

Address of property owner (if different than address where well is located) _____

If the current property owner did not own the property *at the time that well was drilled*, list all known previous property owner names and business names [ex: Charles Jones (owner) Charlie's Restaurant (business name) below] **This information is critical to perform the database search.**

Provide contact information below necessary for the record search

Requestor Name _____

Mailing Address _____

Phone Number _____

Fax Number _____

E-mail Address _____

Please return this form by mail or by fax to

Linda Walsh

NJDEP-Bureau of Safe Drinking Water

PO Box 420

Trenton, NJ 08625-0420

Fax # (609) 292-1654

**New Jersey Well Vulnerability Questionnaire
Attachments**

**ATTACHMENT 3
CFR TABLE SELECTION BASED ON GEOLOGIC FORMATION OR AQUIFER NAME**

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GEOLOGIC FORMATION OR AQUIFER NAMES (Parentheses Contain Formations, Members and Type Lists)	APPROPRIATE CFR TABLE
Albite Oligoclase Granite	Table 2
Allentown Dolomite (Upper, Limeport)	Table 4
Alluvial Deposits (Alluvium, Beach Sand, Channel Deposits, Colluvium, Deltaic Sediments, Eolian, Estuarine Deposits, Fans, Floodplain Deposits, Fluvial Deposits, Gravels, Sands)	Table 1
Amphibolite	Table 2
Basalt (1st/2nd/3rd Watchung Flows, Hook Mt., Orange Mt., Preakness, Weathered)	Table 2
Beacon Hill Gravel	Table 1
Beekmantown Group (Upper, Lower)	Table 4
Beemerville Intrusive Suite	Table 2
Bellvale Sandstone	Table 4
Berkshire Valley Formation	Table 4
Biotite Granite	Table 2
Bloomsburg Red Beds	Table 2
Boonton Formation	Table 4
Bossardville Limestone	Table 4
Bridgeton Formation	Table 1
Brunswick Sedimentary Group	Table 4
Buttermilk Falls Limestone	Table 4
Byram Intrusive Suite	Table 2
Cape May Sands	Table 1
Chestnut Hill Formation	Table 2
Coeymans Formation (Depue Limestone, Peters Valley, Ravena Shawnee, Stormville)	Table 4
Cohansey Sand	Table 1
Cohansey-Kirkwood Aquifer	Table 1
Conglomerate (Connelly, Greenpond, Skunnemunk Limestone)	Table 2

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GEOLOGIC FORMATION OR AQUIFER NAMES (Parentheses Contain Formations, Members and Type Lists)	APPROPRIATE CFR TABLE
Corwall Shale	Table 2
Decker Formation (Clove Brook, Wallpack)	Table 4
Diabase (Late Proterozoic, Weathered)	Table 2
Diorite	Table 2
Englishtown Formation (or Aquifer)	Table 1
Epler Formation (Branchville, Lafayette, Big Springs)	Table 4
Esopus Formation	Table 2
Feltville Formation	Table 4
Franklin Limestone	Table 2
Glacial Deposits (Delta, Lag, Lake, Lake Bottom, Moraine, Till, Tillstone)	Table 4
Glacial Deposits (Kame, Kame Terrace, Lacustrine Fan, Lacustrine Bottom, Meltwater Terrace, Stratified Drift, Valley Outwash)	Table 3
Glenarie Formation	Table 4
Gneiss (Baltimore, Biotite-Plagioclase, Monazite, Potassic-Feldspar, Precambrian, Syenite, Weathered, Wissahickon)	Table 2
Granite (Alaskite, Biotite, Hornblende, Mt. Eve, Precambrian, Pyroxene Syenite, Quartzite)	Table 2
Graybed Hornfels	Table 2
Green Pond Conglomerate	Table 2
Hammer Creek Formation	Table 2
Hardyston Quartzite	Table 2
High Falls Formation	Table 2
Holly Beach Water-bearing Zone	Table 1
Homerstown Sand	Table 1
Hornfel	Table 2
Jacksonburg Limestone (Cement Limestone Facie, Cement Rock Facie, Wantage Sequence)	Table 4
Jutland Klippe Sequence (Unit A, Unit B)	Table 4
Kalkberg Limestone	Table 4

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GEOLOGIC FORMATION OR AQUIFER NAMES (Parentheses Contain Formations, Members and Type Lists)	APPROPRIATE CFR TABLE
Kanouse Sandstone	Table 2
Kirkwood Formation (Upper Sand, Lower Sand, 800-Ft. Sand, Rio-Grande)	Table 1
Kittantiny Supergroup (Lower, Middle Limestone)	Table 4
Lake Hopatcong Intrusive Suite	Table 2
Lamprophyre and Related Rocks	Table 2
Leithsville Formation (Calfon, Hamburg, Walkill)	Table 4
Lockatong Formation	Table 2
Longwood Shale	Table 2
Losee Metamorphic Suite	Table 2
Magothy Formation (Amboy Stoneware Clay, Old Bridge Sand, Sayerville Sand, South Amboy Fire Clay)	Table 1
Magothy, Raritan & Potomac Aquifer (Lower, Middle, Upper Aquifer)	Table 1
Manasquan Formation (Manasquan-Vincentown)	Table 1
Manhattan Schist	Table 2
Manlius Limestone (Thacker Member)	Table 4
Marble	Table 2
Marcellus Shale	Table 2
Marshalltown Formation	Table 1
Martinsburg Shale (Bushkill, High Point, Pen Argyl, Ramseyburg)	Table 2
Merchantville Formation	Table 1
Metasedimentary Rocks	Table 2
Microantiperthite Alaskite	Table 2
Migmatite	Table 2
Minisink Limestone	Table 4
Mt. Laurel Formation	Table 1
Mt. Laurel & Wenonah Sands	Table 1
Navesink Formation	Table 1
Nepheline Syenite	Table 2

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GEOLOGIC FORMATION OR AQUIFER NAMES (Parentheses Contain Formations, Members and Type Lists)	APPROPRIATE CFR TABLE
New Scotland Formation (Flatbrookville)	Table 2
Onondaga Limestone	Table 4
Ontelaunee Formation (Beaver Run, Harmonyvale)	Table 4
Oriskany Group	Table 2
Ouachitte Breccia, Volcanic Breccia	Table 4
Passaic Formation	Table 4
Pennsauken Formation (Pennsauken-Bridgeton)	Table 1
Piney Point Aquifer	Table 1
Port Ewen Shale	Table 2
Potomac Formation (Upper, Middle, Lower)	Table 1
Poxono Island Formation	Table 2
Raritan Form. (Farrington Sand, Fire Clay, Sayreville Sand, Woodbridge Clay)	Table 1
Red-bed Hornfels	Table 2
Red Bank Sand	Table 1
Rickenback Dolomite (Hope, Lower)	Table 4
Ridgely Sandstone	Table 4
Rondout Formation (Duttonville, Mashipacong, Whiteport Dolomite)	Table 4
Schoharie Formation	Table 2
Serpentine	Table 2
Shark River Formation	Table 1
Shawangunk Formation	Table 2
Shriver Chert	Table 2
Skunnemunk Conglomerate	Table 2
Stockton Formation	Table 4
Stonehenge Formation	Table 2
Swamp and Marsh Deposits	Table 3
Tinton Sand	Table 1

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GEOLOGIC FORMATION OR AQUIFER NAMES (Parentheses Contain Formations, Members and Type Lists)	APPROPRIATE CFR TABLE
Towaco Formation	Table 3
Vincentown Formation (Vincentown-Homerstown)	Table 1
Weathered Carbonate	Table 4
Weathered (Basalt, Conglomerate, Diabase, Gneiss, Mudstone, Quartzite, Sandstone, Schist, Shale, Slate)	Table 2
Wenonah Formation	Table 1
Woodbury Clay (Woodbury-Merchantville)	Table 1

**New Jersey Well Vulnerability Questionnaire
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**ATTACHMENT 4
CFR TABLE SELECTION BASED ON MUNICIPALITY**

**New Jersey Well Vulnerability Questionnaire
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COUNTY	MUNICIPALITY	CFR TABLE
Atlantic	ALL MUNICIPALITIES	Table 1

COUNTY	MUNICIPALITY	CFR TABLE
Bergen	Allendale Boro	Table 4
Bergen	Alpine Boro	Table 2
Bergen	Bergenfield Boro	Table 4
Bergen	Bogota Boro	Table 4
Bergen	Carlstadt Boro	Table 4
Bergen	Cliffside Park Boro	Table 2
Bergen	Closter Boro	Table 4
Bergen	Cresskill Boro	Table 4
Bergen	Demarest Boro	Table 4
Bergen	Dumont Boro	Table 4
Bergen	East Rutherford Boro	Table 4
Bergen	Edgewater Boro	Table 2
Bergen	Elmwood Park Boro	Table 4
Bergen	Emerson Boro	Table 4
Bergen	Englewood City	Table 2
Bergen	Englewood Cliffs Boro	Table 2
Bergen	Fair Lawn Boro	Table 4
Bergen	Fairview Boro	Table 2
Bergen	Fort Lee Boro	Table 2
Bergen	Franklin Lakes Boro	Table 2
Bergen	Garfield City	Table 4
Bergen	Glen Rock Boro	Table 4

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Bergen	Hackensack City	Table 4
Bergen	Harrington Park Boro	Table 4
Bergen	Hasbrouck Heights Boro	Table 4
Bergen	Haworth Boro	Table 4
Bergen	Hillsdale Boro	Table 4
Bergen	Hohokus Boro	Table 4
Bergen	Leonia Boro	Table 4
Bergen	Little Ferry Boro	Table 4
Bergen	Lodi Boro	Table 4
Bergen	Lyndhurst Twp	Table 4
Bergen	Mahwah Twp	Table 2
Bergen	Maywood Boro	Table 4
Bergen	Midland Park Boro	Table 4
Bergen	Montvale Boro	Table 4
Bergen	Moonachie Boro	Table 4
Bergen	New Milford Boro	Table 4
Bergen	North Arlington Boro	Table 4
Bergen	Northvale Boro	Table 4
Bergen	Norwood Boro	Table 4
Bergen	Oakland Boro	Table 2
Bergen	Old Tappan Boro	Table 4
Bergen	Oradell Boro	Table 4
Bergen	Palisades Park Boro	Table 2
Bergen	Paramus Boro	Table 4
Bergen	Park Ridge Boro	Table 4
Bergen	Ramsey Boro	Table 4
Bergen	Ridgefield Boro	Table 4
Bergen	Ridgefield Park Village	Table 4
Bergen	Ridgewood Village	Table 4

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Bergen	River Edge Boro	Table 4
Bergen	River Vale Twp	Table 4
Bergen	Rochelle Park Twp	Table 4
Bergen	Rockleigh Boro	Table 4
Bergen	Rutherford Boro	Table 4
Bergen	Saddle Brook Twp	Table 4
Bergen	Saddle River Boro	Table 4
Bergen	South Hackensack Twp	Table 4
Bergen	Teaneck Twp	Table 4
Bergen	Tenafly Boro	Table 2
Bergen	Teterboro Boro	Table 4
Bergen	Upper Saddle River Boro	Table 4
Bergen	Waldwick Boro	Table 4
Bergen	Wallington Boro	Table 4
Bergen	Washington Twp	Table 4
Bergen	Westwood Boro	Table 4
Bergen	Woodcliff Lake Boro	Table 4
Bergen	Wood-Ridge Boro	Table 4
Bergen	Wyckoff Twp	Table 4

COUNTY	MUNICIPALITY	CFR TABLE
Burlington	ALL MUNICIPALITIES	Table 1

COUNTY	MUNICIPALITY	CFR TABLE
Camden	ALL MUNICIPALITIES	Table 1

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COUNTY	MUNICIPALITY	CFR TABLE
Cape May	ALL MUNICIPALITIES	Table 1

COUNTY	MUNICIPALITY	CFR TABLE
Cumberland	ALL MUNICIPALITIES	Table 1

COUNTY	MUNICIPALITY	CFR TABLE
Essex	Belleville Town	Table 4
Essex	Bloomfield Town	Table 4
Essex	Caldwell Boro	Table 2
Essex	Cedar Grove Twp	Table 2
Essex	East Orange City	Table 4
Essex	Essex Fells Boro	Table 2
Essex	Fairfield Boro	Table 3
Essex	Glen Ridge Boro	Table 4
Essex	Irvington Town	Table 4
Essex	Livingston Twp	Table 2
Essex	Maplewood Twp	Table 4
Essex	Millburn Twp	Table 2
Essex	Montclair Town	Table 4
Essex	Newark City	Table 4
Essex	North Caldwell Boro	Table 2
Essex	Nutley Town	Table 4
Essex	Orange City	Table 4
Essex	Roseland Boro	Table 2

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Essex	South Orange Village	Table 4
Essex	Verona Boro	Table 2
Essex	West Caldwell Boro	Table 2
Essex	West Orange Town	Table 2

COUNTY	MUNICIPALITY	CFR TABLE
Glooucester	ALL MUNICIPALITIES	Table 1

COUNTY	MUNICIPALITY	CFR TABLE
Hudson	Bayonne City	Table 2
Hudson	East Newark Boro	Table 4
Hudson	Guttenberg Town	Table 2
Hudson	Harrison Town	Table 4
Hudson	Hoboken City	Table 2
Hudson	Jersey City	Table 2
Hudson	Kearny Town	Table 4
Hudson	North Bergen Twp.	Table 2
Hudson	Secaucus Twp	Table 4
Hudson	Union City	Table 2
Hudson	Weehawken Twp	Table 2
Hudson	West New York Town	Table 2

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COUNTY	MUNICIPALITY	CFR TABLE
Hunterdon	Alexandria Twp	Table 2
Hunterdon	Bethlehem Twp	Table 2
Hunterdon	Bloomsbury Boro	Table 4
Hunterdon	Califon Boro	Table 2
Hunterdon	Clinton Town	Table 2
Hunterdon	Clinton Twp	Table 2
Hunterdon	Delaware Twp	Table 2
Hunterdon	East Amwell Twp	Table 2
Hunterdon	Flemington Boro	Table 4
Hunterdon	Franklin Twp	Table 2
Hunterdon	Frenchtown Boro	Table 4
Hunterdon	Glen Gardner Boro	Table 2
Hunterdon	Hampton Boro	Table 2
Hunterdon	High Bridge Boro	Table 2
Hunterdon	Holland Twp	Table 2
Hunterdon	Kingwood Twp	Table 2
Hunterdon	Lambertville City	Table 2
Hunterdon	Lebanon Boro	Table 2
Hunterdon	Lebanon Twp	Table 2
Hunterdon	Milford Boro	Table 4
Hunterdon	Raritan Twp	Table 2
Hunterdon	Readington Twp	Table 4
Hunterdon	Stockton Boro	Table 4
Hunterdon	Tewksbury Twp	Table 2
Hunterdon	Union Twp	Table 2
Hunterdon	West Amwell Twp	Table 2

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COUNTY	MUNICIPALITY	CFR Table
Mercer	East Windsor Twp	Table 1
Mercer	Ewing Twp	Table 2
Mercer	Hamilton Twp	Table 1
Mercer	Hightstown Boro	Table 1
Mercer	Hopewell Boro	Table 2
Mercer	Hopewell Twp	Table 2
Mercer	Lawrence Twp	Table 2
Mercer	Pennington Boro	Table 4
Mercer	Princeton Boro	Table 2
Mercer	Princeton Twp	Table 2
Mercer	Trenton City	Table 2
Mercer	Washington Twp	Table 1
Mercer	West Windsor Twp	Table 4

COUNTY	MUNICIPALITY	CFR Table
Middlesex	Carteret Boro	Table 4
Middlesex	Cranbury Twp	Table 4
Middlesex	Dunellen Boro	Table 1
Middlesex	East Brunswick Twp	Table 1
Middlesex	Edison Twp	Table 4
Middlesex	Helmetta Boro	Table 1
Middlesex	Highland Park Boro	Table 4
Middlesex	Jamesburg Boro	Table 1
Middlesex	Metuchen Boro	Table 4
Middlesex	Middlesex Boro	Table 4

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Middlesex	Milltown Boro	Table 4
Middlesex	Monroe Twp	Table 1
Middlesex	New Brunswick City	Table 4
Middlesex	North Brunswick Twp	Table 4
Middlesex	Old Bridge Twp	Table 1
Middlesex	Perth Amboy City	Table 1
Middlesex	Piscataway Twp	Table 4
Middlesex	Plainsboro Twp	Table 2
Middlesex	Sayreville Boro	Table 1
Middlesex	South Amboy City	Table 1
Middlesex	South Brunswick Twp	Table 2
Middlesex	South Plainfield Boro	Table 4
Middlesex	South River Boro	Table 1
Middlesex	Spotswood Boro	Table 1
Middlesex	Woodbridge Twp	Table 4

COUNTY	MUNICIPALITY	CFR TABLE
Monmouth	ALL MUNICIPALITIES	Table 1

COUNTY	MUNICIPALITY	CFR TABLE
Morris	Boonton Town	Table 2
Morris	Boonton Twp	Table 2
Morris	Butler Boro	Table 2
Morris	Chatham Boro	Table 2
Morris	Chatham Twp	Table 2

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Morris	Chester Boro	Table 2
Morris	Chester Twp	Table 2
Morris	Denville Twp	Table 2
Morris	Dover Town	Table 2
Morris	East Hanover Twp	Table 4
Morris	Florham Park Boro	Table 4
Morris	Hanover Twp	Table 4
Morris	Harding Twp	Table 2
Morris	Jefferson Twp	Table 2
Morris	Kinnelon Boro	Table 2
Morris	Lincoln Park Boro	Table 2
Morris	Madison Boro	Table 4
Morris	Mendham Boro	Table 2
Morris	Mendham Twp	Table 2
Morris	Mine Hill Twp	Table 2
Morris	Montville Twp	Table 2
Morris	Morris Plains Boro	Table 2
Morris	Morris Twp	Table 2
Morris	Morristown Town	Table 2
Morris	Mount Arlington Boro	Table 2
Morris	Mount Olive Twp	Table 2
Morris	Mountain Lakes Boro	Table 2
Morris	Netcong Boro	Table 2
Morris	Parsippany-Troy Hills Twp	Table 4
Morris	Passaic Twp	Table 2
Morris	Pequannock Twp	Table 4
Morris	Randolph Twp	Table 2
Morris	Riverdale Boro	Table 2
Morris	Rockaway Boro	Table 2

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Morris	Rockaway Twp	Table 2
Morris	Roxbury Twp	Table 2
Morris	Victory Gardens Boro	Table 2
Morris	Washington Twp	Table 2
Morris	Wharton Boro	Table 2

COUNTY	MUNICIPALITY	CFR TABLE
Ocean	ALL MUNICIPALITIES	Table 1

COUNTY	MUNICIPALITY	CFR TABLE
Passaic	Bloomington Boro	Table 2
Passaic	Clifton City	Table 4
Passaic	Haledon Boro	Table 2
Passaic	Hawthorne Boro	Table 4
Passaic	Little Falls Twp	Table 2
Passaic	North Haledon Boro	Table 2
Passaic	Passaic City	Table 4
Passaic	Paterson City	Table 4
Passaic	Pompton Lakes Boro	Table 2
Passaic	Prospect Park Boro	Table 2
Passaic	Ringwood Boro	Table 2
Passaic	Totowa Boro	Table 2
Passaic	Wanaque Boro	Table 2
Passaic	Wayne Twp	Table 2
Passaic	West Milford Twp	Table 2

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Passaic	West Paterson Boro	Table 2
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COUNTY	MUNICIPALITY	CFR TABLE
Salem	ALL MUNICIPALITIES	Table 1

COUNTY	MUNICIPALITY	CFR Table
Somerset	BedminsterTwp	Table 4
Somerset	Bernards Twp.	Table 2
Somerset	Bernardsville Boro	Table 2
Somerset	Bound Brook Boro	Table 4
Somerset	Branchburg Twp	Table 4
Somerset	Bridgewater Twp	Table 2
Somerset	Far Hills Boro	Table 2
Somerset	Franklin Twp	Table 4
Somerset	Green Brook Twp	Table 2
Somerset	Hillsborough Twp	Table 4
Somerset	Manville Boro	Table 4
Somerset	Millstone Boro	Table 4
Somerset	Montgomery Twp	Table 4
Somerset	North Plainfield Boro	Table 4
Somerset	Peapack Gladstone Boro	Table 2
Somerset	Raritan Boro	Table 4
Somerset	Rocky Hill Boro	Table 4
Somerset	Somerville Boro	Table 4
Somerset	South Bound Brook Boro	Table 4

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Somerset	Warren Twp	Table 2
Somerset	Watchung Boro	Table 2

COUNTY	MUNICIPALITY	CFR TABLE
Sussex	Andover Boro	Table 2
Sussex	Andover Twp	Table 2
Sussex	Branchville Boro	Table 2
Sussex	Byram Twp	Table 2
Sussex	Frankford Twp	Table 2
Sussex	Franklin Boro	Table 2
Sussex	Fredon Twp	Table 2
Sussex	Green Twp	Table 2
Sussex	Hamburg Boro	Table 2
Sussex	Hampton Twp	Table 2
Sussex	Hardyston Twp	Table 2
Sussex	Hopatcong Boro	Table 2
Sussex	Lafayette Twp	Table 2
Sussex	Montague Twp	Table 2
Sussex	Newton Town	Table 2
Sussex	Ogdensburg Boro	Table 2
Sussex	Sandyston Twp	Table 2
Sussex	Sparta Twp	Table 2
Sussex	Stanhope Boro	Table 2
Sussex	Stillwater Twp	Table 2
Sussex	Sussex Boro	Table 2
Sussex	Vernon Twp	Table 2
Sussex	Walpack Twp	Table 2

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Sussex	Wantage Twp	Table 2
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COUNTY	MUNICIPALITY	CFR TABLE
Union	Berkeley Heights Twp	Table 2
Union	Clark Twp	Table 4
Union	Cranford Twp	Table 4
Union	Elizabeth City	Table 4
Union	Fanwood Boro	Table 4
Union	Garwood Boro	Table 4
Union	Hillside Twp	Table 4
Union	Kenilworth Boro	Table 4
Union	Linden City	Table 4
Union	Mountainside Boro	Table 2
Union	New Providence Boro	Table 2
Union	Plainfield City	Table 4
Union	Rahway City	Table 4
Union	Roselle Boro	Table 4
Union	Roselle Park Boro	Table 4
Union	Scotch Plains Twp	Table 4
Union	Springfield Twp	Table 2
Union	Summit City	Table 2
Union	Union Twp	Table 4
Union	Westfield Town	Table 4
Union	Winfield Twp	Table 4

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COUNTY	MUNICIPALITY	CFR TABLE
Warren	Allamuchy Twp	Table 2
Warren	Alpha Boro	Table 4
Warren	Belvidere Town	Table 4
Warren	Blairstown Twp	Table 2
Warren	Franklin Twp	Table 2
Warren	Frelinghuysen Twp	Table 2
Warren	Greenwich Twp	Table 4
Warren	Hackettstown Town	Table 4
Warren	Hardwick Twp	Table 2
Warren	Harmony Twp	Table 2
Warren	Hope Twp	Table 2
Warren	Independence Twp	Table 2
Warren	Knowlton Twp	Table 2
Warren	Liberty Twp	Table 2
Warren	Lopatcong Twp	Table 2
Warren	Mansfield Twp.	Table 2
Warren	Oxford Twp	Table 2
Warren	Pahaquarry Twp	Table 2
Warren	Phillipsburg Twp	Table 4
Warren	Pohatcong Twp	Table 2
Warren	Washington Boro	Table 2
Warren	Washington Twp	Table 2
Warren	White Twp	Table 2